

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference 308047	FOR FURTHER ACTION		See item 4 below
International application No. PCT/EP2005/050560	International filing date (day/month/year) 09 February 2005 (09.02.2005)	Priority date (day/month/year) 19 March 2004 (19.03.2004)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant ROBERT BOSCH GMBH			

<p>1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).</p> <p>2. This REPORT consists of a total of 7 sheets, including this cover sheet.</p> <p>In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.</p>																
<p>3. This report contains indications relating to the following items:</p> <table> <tr> <td><input checked="" type="checkbox"/> Box No. I</td> <td>Basis of the report</td> </tr> <tr> <td><input type="checkbox"/> Box No. II</td> <td>Priority</td> </tr> <tr> <td><input type="checkbox"/> Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td><input type="checkbox"/> Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td><input checked="" type="checkbox"/> Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td><input type="checkbox"/> Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td><input type="checkbox"/> Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td><input checked="" type="checkbox"/> Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table> <p>4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis.2).</p>	<input checked="" type="checkbox"/> Box No. I	Basis of the report	<input type="checkbox"/> Box No. II	Priority	<input type="checkbox"/> Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/> Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/> Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/> Box No. VI	Certain documents cited	<input type="checkbox"/> Box No. VII	Certain defects in the international application	<input checked="" type="checkbox"/> Box No. VIII	Certain observations on the international application
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The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. +41 22 338 82 70	Date of issuance of this report 01 November 2006 (01.11.2006)
	Authorized officer Agnes Wittmann-Regis e-mail: pt06@wipo.int

PATENT COOPERATION TREATY

TRANSLATION

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

Date of mailing (day/month/year) **See form PCT/ISA/210**

Applicant's or agent's file reference
308047

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/EP2005/050560

International filing date (day/month/year)
09.02.2005

Priority date (day/month/year)
19.03.2004

International Patent Classification (IPC) or both national classification and IPC
G01N27/407

Applicant
ROBERT BOSCH GMBH

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/EP

Authorized officer

Facsimile No.

Telephone No.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/EP2005/050560

Box No. 1

Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rule 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/EP2005/050560

Box No. V Reasoned statement under Rule 43bis 1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-24, 27	YES
	Claims	25, 26	NO
Inventive step (IS)	Claims	1-24	YES
	Claims	25-27	NO
Industrial applicability (IA)	Claims	1-27	YES
	Claims		NO

2. Citations and explanations:

1. Reference is made to the following documents:

D1: WO 01/16588 A
D2: US 2003/029225 A1
D3: EP-A-1 052 503
D4: US 6645361

2. Claims 25-27

2.1 The present application does not meet the requirements of PCT Article 33(1) because the subject matter of claim 25 is not novel within the meaning of PCT Article 33(2).

2.2 Document D1 discloses (the references between parentheses relate to said document):

a sensor element (10) having a conductor track (22) applied on a solid electrolyte, which conductor track comprises an electrode provided in a measurement region of the sensor element and an electrode supply lead that leads to the electrode and is arranged in a supply lead region of the

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Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;
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sensor element (figure 3 or 4), a heating element (40) for heating the measurement region of the sensor element being provided, the electrode comprising a first electrode section and a second electrode section, the first electrode section being connected to the electrode supply lead in a transition region between the measurement region and the supply lead region, and the first and second electrode sections being electrically connected to one another only on their sides remote from the supply lead region (figure 3 or 4).

2.3 Documents D2 and D3 likewise anticipate the novelty of claim 25.

2.4 Dependent claims 26 and - in so far as this claim can be understood - 27 likewise contain no novel (claim 26) and inventive (claim 27) features.

3. Claims 1-24

3.1 The invention as it is defined in claim 1 relates to a sensor element (10) having a conductor track (22) applied on a solid electrolyte, which conductor track comprises an electrode provided in a measurement region of the sensor element and an electrode supply lead that leads to the electrode and is arranged in a supply lead region of the sensor element (figure 3 or 4), a heating element (40) for heating the measurement region of the sensor element being provided.

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Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;
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3.2 Such a sensor element is known e.g. from D1.

3.3 The subject matter of the invention differs from the known sensor element by virtue of the fact that the conductor track has a constriction in a transition region between the measurement region and the supply lead region.

The subject matter of claim 1 is therefore novel (PCT Article 33(2)).

3.4 The problem thereby addressed can be considered that of reducing the temperature gradient in the electrode area (also see the description, page 2, lines 18-20).

3.5 The solution proposed in claim 1 is not disclosed or suggested by any of the documents named from the search report. The subject matter of claim 1 is therefore inventive (PCT Article 33(3)).

3.6 Claims 2-24 are dependent on claim 1 and therefore likewise meet the PCT Requirements for novelty and inventive step.

4. The invention is industrially applicable (PCT Article 33(4)).

WRITTEN OPINION OF THE
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International application No.

PCT/EP2005/050560

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

1. In claim 1 the conductor track is not clearly defined (PCT Article 6): in particular, it is not clear which part is meant by the words "electrode supply lead". This might mean the contact-connection area. In such a case, and with reference to document D4, figure 3, the transition region of the invention would then correspond to the part 41, and the subject matter of claim 1 would therefore not be novel over D4 (PCT Article 33(2)). In other words, the definition of the contact area as part of the conductor track appears to be missing in claim 1.
2. Effects to be achieved are defined in claims 3 and 20. These claims are therefore unclear (PCT Article 6).
3. Claim 27 is unclear (PCT Article 6) because it relates to features from claim 15, on which it is not necessarily dependent.

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3.4 The problem thereby addressed can be considered that of reducing the temperature gradient in the electrode area (also see the description, page 2, lines 18-20).

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3.6 Claims 2-24 are dependent on claim 1 and therefore likewise meet the PCT Requirements for novelty and inventive step.

4. The invention is industrially applicable (PCT Article 33(4)).

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3. Claim 27 is unclear (PCT Article 6) because it relates to features from claim 15, on which it is not necessarily dependent.